

1. An indirectly-heated micro combined heat and power system comprising:
 - a heat source;
 - an interloop heat exchanger in thermal communication with said heat source;
 - a first fluid-circulating loop with at least a portion thereof passing through a first channel of said interloop heat exchanger, said first fluid-circulating loop comprising:
 - an organic working fluid;
 - a scroll expander;
 - a generator operatively responsive to said scroll expander to generate electricity;
 - a condenser in fluid communication with said scroll expander, said condenser adapted to establish a heat exchange relationship between said organic working fluid and an external heat exchange fluid for space heating within a dwelling; and
 - a pump for the circulation of said organic working fluid; and
 - a second fluid circulating loop with at least a portion thereof passing through a second channel of said interloop heat exchanger such that said second fluid circulating loop is in thermal communication with said first loop, said second fluid circulating loop comprising:
 - a first sub-loop comprising:
 - piping to circulate a heat exchange fluid disposed in said second fluid-circulating loop, at least a portion of said piping in thermal communication with said heat source;
 - a domestic hot water heat exchanger; and
 - at least one pump to circulate a portion of said heat exchange fluid through said domestic hot water heat exchanger;
 - a second sub-loop comprising:
 - piping to circulate said heat exchange fluid such that it is in heat exchange relationship with said organic working fluid in said interloop heat exchanger;
 - at least one pump to circulate a portion of said heat exchange fluid through said interloop heat exchanger,

wherein said heat source, said heat exchanger, said first loop and said scroll expander are configured such that, upon application of heat from said heat source to said organic working fluid via said interloop heat exchanger, said organic working fluid becomes superheated to an extent that said organic working fluid remains superheated at least through said scroll expander.

2. An indirectly-heated micro combined heat and power system according to claim 1, further comprising an exhaust duct in fluid communication with said heat source such that products from said heat source may be removed from said micro combined heat and power system.

3. An indirectly-heated micro combined heat and power system according to claim 2, further comprising a heat exchanger in thermal communication with said exhaust duct.

4. An indirectly-heated micro combined heat and power system according to claim 1, further comprising a space heating loop preheat device placed in heat exchange communication with said second fluid circulating loop.

5. An indirectly-fired cogeneration system comprising:
a heat source;
a passive heat transfer element in thermal communication with said heat source;
a first circuit disposed adjacent an end of said passive heat transfer element such to accept heat transferred therefrom, said first circuit comprising:
an organic working fluid that becomes superheated upon receipt of heat from said passive heat transfer element;
a scroll expander configured to receive said superheated organic working fluid;
a condenser in fluid communication with said scroll expander, said condenser configured to transfer at least a portion of the excess heat contained in said organic working fluid to an external heating loop;
and

a pump configured to circulate said organic working fluid through said first circuit;

a generator coupled to said scroll expander to produce electricity in response to motion imparted to it from said scroll expander; and

a second circuit configured to transport a heat exchange fluid therethrough, said second circuit in thermal communication with an end of said passive heat transfer element such that heat transferred therefrom increases the energy content of said heat exchange fluid, said second circuit comprising:

a combustion chamber disposed adjacent said heat source;

at least one external loop heat exchanger; and

conduit to transport said heat exchange fluid between said combustion chamber and said at least one external loop heat exchanger.

6. An indirectly-fired cogeneration system according to claim 5, wherein said passive heat transfer element is a heat pipe.

7. An indirectly-fired cogeneration system according to claim 5, wherein said combustion chamber is defined by:

an exhaust duct in combustion communication with said heat source;

an exhaust fan coupled to said exhaust duct to facilitate the removal of exhaust gas;

and

an exhaust gas recirculation duct in exhaust communication with said combustion chamber.

8. A cogeneration system comprising:

a heat source;

a passive heat transfer element in thermal communication with said heat source;

a first circuit disposed adjacent an end of said passive heat transfer element such to accept heat transferred therefrom, said first circuit comprising:

an organic working fluid that becomes superheated upon receipt of heat from said passive heat transfer element;

a scroll expander configured to receive said superheated organic working fluid;

a condenser in fluid communication with said scroll expander, said condenser configured to transfer at least a portion of the excess heat contained in said organic working fluid to an external heating loop; and

a pump configured to circulate said organic working fluid through said first circuit; and

a generator coupled to said scroll expander to produce electricity in response to motion imparted to it from said scroll expander.

9. A cogeneration system according to claim 8, wherein said passive heat transfer element is a heat pipe.

10. An cogeneration system according to claim 8, wherein said combustion chamber is defined by:

an exhaust duct in combustion communication with said heat source;

an exhaust fan coupled to said exhaust duct to facilitate the removal of exhaust gas;

and

an exhaust gas recirculation duct in exhaust communication with said combustion chamber.